Proceedings in Obstetrics and Gynecology, 2020;9(3):4

Investigation of the relationship between gestational week and sexuality

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Keywords: Pregnancy, sexuality, dyspareunia, libido

Abstract

Background: The aim of the study was to twofold: to provide sociological data comparing sexuality both before and during pregnancy for women in developing countries as well as to look for differences in correlation between elements of sexuality and gestational age. Its intention is to help improve communication between physicians and patients in and from countries where social mores and traditions make such conversations difficult and uncommon.

Methods: Participants in the study included 1026 pregnant women at different gestational ages that presented to an Antenatal Outpatient Clinic in Istanbul, Turkey between April 2017 and November 2017. The participants were given a questionnaire composed of 20 questions, 17 of which were multiple-choice. The pregnant women were asked to mark the most appropriate option for them. The questionnaire began by collecting demographic information. Participants were asked to provide their current gestational week, age, weight and height. In another question, they were asked about their gravidity, parity, abortions, cesarean sections and curettage as well as about the presence of any dyspareunia. Questions about libido were evaluated on a 12-point scale based on the Turkish Libido Scoring System.

Results: The frequency of sexual intercourse, orgasm and masturbation as well as the gender of the partner initiating sexual intercourse were compared before and during pregnancy. Differences across gestational age (first, second and third trimester) were also considered where relevant. Notably, the frequency of sexual intercourse and orgasm decrease significantly during pregnancy; however, trends related to masturbation and gender of the partner did not change in any meaningful way.

Conclusion: The frequency of sexual intercourse and related activities were determined to decrease significantly as gestational age increased. Sexual intercourse was determined to be mostly initiated by the male partner before and during pregnancy and this rate was found to mildly increase during pregnancy and the difference was determined to be statistically significant.

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Please cite this paper as: Seyhan Y, Birge Ö, Serin AN, Kayar İ. Investigation of the relationship between gestational week and sexuality. Proc Obstet Gynecol. 2020;9(3):Article 4 [12 p.]. Available from: http://ir.uiowa.edu/ Free full text article.

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Financial Disclosure*: The authors report no conflict of interest.*

Background

Sexuality is defined as a need and an instinct that, while not vital, is mandatory for continuation of the species. Contrary to beliefs, sexuality begins before birth and continues until death. The description and satisfaction of sexuality are expressed differently at every stage of life. Human sexuality is multi-dimensional and develops throughout life, being affected by psychological, physiological and socio-cultural factors.[1,2]

Sexuality is an important part of human life. It is a multi-dimensional, complex event that has biological, social, inter-personal and cultural aspects.[3] Pregnancy is quite a different process that affects the life of the women. In particular, a first pregnancy is among the most important events in a woman's life; it is a transition from one physical status to another, from being a couple to being a family. It is a period during which both partners must accept many changes and experience different feelings. Pregnancy affects a woman's sexual life as a result of anatomical, physiological and emotional changes.[4,5] While talking about sexuality can be relatively easy in developed countries, it is still a taboo in developing countries. Because of such social restrictions in developing countries, sexuality during pregnancy is an issue that couples usually do not inquire about or perhaps cannot ask their doctors about, and thereby, sexuality during pregnancy continues to be an issue about which couples have insufficient knowledge. Physicians often do not discuss this issue sufficiently during their visits with pregnant women/couples. Sexuality usually comes up only when a pregnancy-related problem occurs, and, at this stage, sexuality is forbidden for a while.[5,6,7] Studies about the effects of pregnancy on sexual life would be useful, both for situation determination and for determining the needs of the couples. To this end, the present study investigates the relationship between the gestational week and sexuality.

Methods

Study participants included 1026 pregnant women at different gestational ages who had presented to the Antenatal Outpatient Clinic, Obstetrics and Gynecology Clinic of Okmeydanı Research and Training Hospital in Istanbul, Turkey, between April 2017 and November 2017. Participants were given a questionnaire composed of 20 questions, 17 of which were multiple choice. The pregnant women were asked to mark the most appropriate option for them. The questionnaire began by collecting demographic information. Participants were asked to provide their current gestational week, age, weight and height. In another question, they were asked about their gravidity, parity, abortions, caesarean sections and curettage as well as about the presence of any dyspareunia.

Participants also responded to questions that asked them about their sexuality directly. The Libido Scoring System (LSS) was used as a scoring system. The Libido Scoring System (LSS), was designed in Turkey and has been applied

to different patient populations since 1997.[8] Its validity and reliability have been studied and accepted, and its results have been included in both in national and international journals.[8] The LSS section of the study questionnaire was composed of 4 questions and asked study participants about frequency of libido, masturbation, initiation of sexual intercourse and orgasm. These questions were evaluated using a system that applied a score of 0, 1, 2 or 3 points for each question, depending on the multiple-choice selection each participant made. A total score for each participant was determined on a scale of 0 to 12. These scores were subsequently interpreted as follows: 0-2 points = very low, 3-4 = low, 5–7 = good, 8–12 = high. The sexual activities of the women before pregnancy and during pregnancy were evaluated separately.

Pregnant women who had a systemic disease, those who were separated from their partners (divorced, etc.), those who were using any drugs that could affect their sexual life and those who had been diagnosed with psychiatric disease were excluded from the study. The remaining participants were included with the aim of investigating their sexual life during pregnancy and the effects of pregnancy on sexual life.

Statistical analysis

The overall score of LSS defines the libido score for each subject. Individual libido scores were averaged to determine mean scores for the group both before and during pregnancy, which were subsequently compared. All data were recorded on SPSS-13 and statistical analyses were carried out where $p < 0.05$ was accepted as a statistically significant finding.

Table 1. Demographic and obstetric characteristics of pregnant women

Descriptive characteristics	Mean -SD
Age	26.0 ± 5.28 (yıl)
Weight	65.0 ± 11.4 (kğ)
Height	1.60 ± 0.06 (m)
BMI	25.0 ± 4.24
Gravida	2.30 ± 1.67
Parity	1.04 ± 1.25
Abortion	0.22 ± 0.56
Cesarean section	0.23 ± 0.50
Curettage	0.90 ± 0.41
Living child	0.98 ± 1.15
Gestational week	22.0 ± 10.04

(BMI: Body Mass Index, SD: Standard Deviation)

Results

The demographic and obstetric characteristics of 1026 pregnant study participants are presented in Table 1 below. Overall, the average study participant was between approximately 21 and 31 years of age, weighed 54 to 66 kg, stood about 1.60 m, had a Body Mass Index of 21 to 31 and was at 12 to 32 weeks gestation. Furthermore, 25.5% (262/1026) of participants were in their first trimester, 43.9% (450/1026) were in their second trimester and 30.6% (314/1026) were in their third trimester.

Participants were questioned about the frequency and severity of dyspareunia

only during pregnancy. While 53.2% of the subjects did not report dyspareunia, 32.6% reported mild, 12.2% moderate and 2% severe dyspareunia. The number of the women reporting dyspareunia increased as the gestational week increased.

Overall, of women willing to provide information about frequency of orgasm, study findings showed a general but significant decrease in frequency over the course of pregnancy. Prior to pregnancy, 10.8% (111/1024) of study participants reported never having an orgasm, while 74.7% (766/1024) reported that they sometimes or usually had orgasms and 14.3% (147/1024) reported always having orgasms. During pregnancy, these rates were 21.7% (223/968), 62.8% (645/968 and 9.7% (100/968) respectively (p=0.001), where the number of women who never experienced orgasm rose while the numbers of women who did experience orgasm with any frequency fell, leading to a net decrease in frequency of orgasm during pregnancy.

Interestingly, the percent of women who claimed to never experience orgasm rose during the first trimester of pregnancy to 25% (as opposed to 10.8% prior to pregnancy), fell to 18% during the second trimester of pregnancy and then rose to a high of 28% during the third trimester. In fact, this same pattern of rise, then fall was seen across trimesters among women who claimed to have orgasms (“sometimes”, “usually” or “always”), with 69.3% reporting orgasms during the first trimester, 76.3% during second trimester and 66.3% during third trimester ($p<0.05$). However, when comparing frequency of orgasm before pregnancy with frequency across all three trimesters, frequency was found to be significantly decreased across all three trimesters ($p1, p2, p3< 0.05$. Finally, of the participants in this study, 5.7% chose not to answer the question about orgasm during pregnancy, while 0.2% did not answer the question about orgasm before pregnancy.

Similarly, the frequency of masturbation was determined to be lower ($p=0.001$) during pregnancy (4.6% [47/1026\) as compared to the period before pregnancy (3.6% [37/1026]). Masturbation rates compared across trimesters were not, however, statistically significant ($p1, p2, p3>0.05$), with 3.6% of study participants reporting use of such techniques in the first trimester, 3.5% in the second trimester and 3.3% in the third trimester. However, a statistically significant difference was found when the period before pregnancy was compared with each trimester separately ($p1, p2, p3<0.05$).

Not surprisingly, study participants showed an overall decrease in the frequency of sexual intercourse during pregnancy as opposed to the period before pregnancy. Thus, while 0.4% never had regular sexual intercourse prior to pregnancy, this rate increased to 5.8% during pregnancy, with the net result being fewer women overall having regular intercourse. Similarly, while 78.4% of the subjects had sexual intercourse twice or more times weekly prior to pregnancy, this rate had decreased to 37.9% during pregnancy

(Table 2). While the mean frequency of sexual intercourse for study participants was 3.07 times per week, the mean rate during pregnancy fell to 2.40 times per week. In comparison across trimesters, the frequency of sexual intercourse decreased as the trimester advanced. Consequently, the overall frequency of sexual intercourse decreased significantly during pregnancy (p=0.001).

Table 2. Frequency of sexual intercourse before and during pregnancy

Case	Number (n)		Percent (%)	
Frequency of sexual intercourse	Before pregnancy	During pregnancy	Before pregnancy	During pregnancy
Never	4	59	0.4	5.8
Less than once a week	218	578	21.2	56.3
Twice a week	506	307	49.4	29.9
More than twice a week	298	82	29	8
Total	1026	1026	100	100

When asked about who most frequently initiated sexual intercourse**,** significantly more participants claimed it was initiated by male partners, both before and during pregnancy. Before pregnancy, 94.5% (970/1026) of women claimed sexual intercourse was initiated by men (always or usually their husbands), while 5.3% (54/1026) claimed it was initiated by females (usually the participant herself or always herself) (5.3%-54/1026). During pregnancy, these rates fell to 88.1% (904/968) for male-initiated sex and rose to 6.2% (64/968) for female-initiated sex. (p=0.0001). There were no statistically significant differences for in-group comparison by trimester or when responses by trimesters were compared with the period before pregnancy (p1, p2, p3>0.05). Of the participants, 5.7% did not to respond the question “Who initiates sexual intercourse during pregnancy?”, which is comparable to the 5.8% who claimed not to have engaged in sex during pregnancy.

In our study, libido scores were evaluated across a 12-point scale. Women whose libido scores were 5 or below, were classified as having decreased libido. Overall, mean libido scores were significantly lower during pregnancy as compared to the period before pregnancy. For this group, the mean libido score before pregnancy was 7.31 ± 0.04, and the rate of women whose libido score was 6 or above was 89.7% (919/1026). However, during pregnancy, mean libido score was 6.38 ± 0.04 while the rate of higher libido scores fell to 74.3% (719/1026) (p1=0.001 and p2=0.0001) (Table 3). Across first, second and third trimester, mean libido scores were 6.45±1.31, 6.49±1.34, 6.18±1.33, respectively. While there was no significant difference between the first and the second trimesters (p=0.90), a significant difference was found between

the first and the third trimester (p<0.05), and the second and the third trimester (p=0.006). When the mean libido scores before pregnancy and during the trimesters were compared separately, libido was found to decrease significantly during all trimesters (p1, p2, p3<0.05).

Table 3. Libido scores, case numbers and percentages before and during pregnancy

Case	Numbers (n)		Percent (%)	
Libido Score	Before pregnancy	During pregnancy	Before pregnancy	During pregnancy
4	15	68	1.5	6.6
5	90	181	8.8	17.6
6	197	289	19.2	28.2
7	275	248	26.8	24.2
8	235	118	22.9	11.5
9	148	46	14.4	4.5
10	58	17	5.7	1.7
11	4	1	0.4	0.1
12	2	0	0.2	0
Total	1026	1026	100	100

Discussion

Just as hunger, thirst and the need to protect oneself are instincts that influence human behavior, so is libido, the instinctual drive to seek sexual activity. All three create an inner human energy and serve to mold the nature of human activity. Yet all three are also influenced by the physiological circumstances of each person's life. Thus, while illness may decrease appetite, stress may conversely increase it. Similarly, pregnancy is a period during which various bodily and emotional changes occur. Libido may decrease during some periods of pregnancy, may become normal and may even increase during some other periods. Such libido changes may be quite evident to the mother. However, other changes, like the increase in libido during the second trimester or the decrease in libido in the third that were seen in some participants in this study may be perceived as mild or may even not be observed by the father.

In this study, we aim to discuss libido with respect to the frequency of sexual intercourse, orgasm, masturbation and the partner initiating sexual activity as they relate to data in current literature. The frequency of sexual activity is an important parameter that provides information about libido level. There is a common consensus that this parameter significantly decreases during pregnancy when compared with the period before pregnancy. In a von Sydow meta-analysis, which analyzed 59 studies investigating sexuality in the postpartum period, the frequency of sexual

intercourse mildly decreased or did not change in first trimester compared to the period before pregnancy, and while it was quite variable in the second trimester, it was reported to suddenly decrease in the third trimester.[9]

In a cross-sectional study by Naim and Bhutto comprising 150 pregnant women, the frequency of sexual intercourse was determined to be 1.6 times weekly during pregnancy and 3.5 times weekly before pregnancy.[4] Oruç et al. similarly found the frequency of sexual intercourse to be 12.4 times monthly before pregnancy and 6.6 times monthly during pregnancy.[10] According to a study by Gökyıldız and Beji, conducted with pregnant Turkish women, 84.7% of the women had sexual intercourse 1-4 times weekly before pregnancy, 70% of the women had sexual intercourse 1-4 times weekly in first trimester, 61.3% of the women had sexual intercourse 1-4 times weekly in second trimester and 32% of the women had sexual intercourse 1-4 times weekly in third trimester, showing that the frequency of sexual intercourse decreased as the gestational age increased.[3] In Yıldırım, 78% of the couples who had sexual intercourse 2-5 times weekly before pregnancy continued to do the same during the first three months of pregnancy, but this rate fell 46% in the 8th month and 23% in the 9th month.[11]

Our study yielded similar results. While the frequency of sexual intercourse was 3.04 times per week before pregnancy, it fell to 2.4 during pregnancy. Furthermore, the frequency of sexual intercourse appeared to decrease as gestational age increased.

Not surprisingly, this study and those that preceded it found that, overall, male partners were the primary initiators of sexual intercourse both before and during pregnancy. In this study, 94.5% of participants reported that sexual intercourse was usually or always initiated by male partners before pregnancy, but that male initiation fell to 88.4% during pregnancy. This study also found that women-initiated intercourse 5.3% and 6.2% of the time, respectively. Similarly, Naim and Bhutto found that sexual activity was usually initiated by males and rarely by females.[4] Likewise, Adinma's study, investigating sexual behaviors and beliefs, had findings that were similar to those of Naim and Bhutto.[12] However, in Gökyıldız and Beji"s study of 150 Turkish women, 51% of the women stated that couples initiated sexual intercourse "equally" before pregnancy, yet this rate fell to 32% in the first trimester, 24% in the second trimester and 28% in the third trimester. Thus, the initiator of intercourse shifted from "partners initiate equally to "usually the male partner" as gestational age increased.[3] Nevertheless, our results indicate that the male partner is significantly dominant in initiating sexual intercourse. This may result from the cultural structure of the community.

Orgasm was another parameter of our study. Sexual intercourse that resulted in orgasm has been investigated in various studies and was determined to decrease during pregnancy as compared to the period before pregnancy. Solberg et al., Reamy et al., Perkins, and Oruç et al.

reported a decrease in orgasm during pregnancy.[10,13,14,15] Gökyıldız and Beji investigated orgasm in their study and found that 6% of women reported that they did not have orgasm before pregnancy. However, they also determined that 24% of women did not experience orgasm in the first trimester, 27.3% in the second trimester and 52.7% in the third trimester.[3] In contrast, Kinsey's study revealed that the percentage of women who never had orgasm decreased with age, and that 95% of women aged between 30-50 appeared to have orgasms frequently while only 78% of women aged between 16-20 reported having orgasm in any way. In addition, 94% of women at ages over 50 reported having orgasms.[21]

Frank evaluated 100 normal, middle-class couples who were members of a church or a club. About half of the women reported that they felt excited but had difficulty in having an orgasm.[22] In a study conducted with 225 randomly selected women at 40 years of age, Garde and Lunde reported that 42% of the women did not have sexual desire, and about 66% had faked having an orgasm when they were not otherwise able to have one.[23] Golombok et al. conducted a study with English women in which 10% of males and 20% of females were determined to never or very rarely feel sexual arousal.[24] Moreover, 3% of males and 20% of females reported that they found sexual intercourse disgusting. In addition, they determined that 17% of women had no orgasm.[24] In an American study, Masters and Johnson (USA) found that the main problem among women was decreased sexual arousal (62%) and orgasm difficulty (18%).[25]

The results of our study were like those in the literature above. 10% of participants claimed to never have an orgasm, while 89.2% claimed to sometimes or usually have an orgasm and 14.4% stated that they always had orgasms before pregnancy. During pregnancy, these rates were 21.7%, 62.8% and 9.4% respectively, and we detected a significant decrease in orgasm during pregnancy. This may result from pregnancy-related nausea, vomiting, fatigue, dyspareunia, sleepiness, growing uterus, the couples being focused on the fetus, fear and social norms.

Masturbation, which is a non-coital sexual behavior, was one of the indicators of sexual desire investigated in our study and in other studies. Most of the couples, who had non-coital sexual behaviors (masturbation, orogenital sex) claimed to abstain from these behaviors during pregnancy. Gökyıldız and Beji, in the study of pregnant Turkish women, also asked for opinions about masturbation. Of the women, 63% claimed that married people should not masturbate, 24% reported that they did not need it as they had partners, and it was not natural, 76% said that pregnant women should not masturbate and 32% did not offer an explanatory reason.[3] In 1953, Kinsey, in a study about female sexual behavior reported, that 40% of women had orgasm with masturbation at some period of their lives.[26] In 2003, however, Kinsey reported a rate of 58% in the same circumstances.[27]

The Hite Report, investigating 3019 women in 1976, also shed light on female sexuality and masturbation.[16] Hite reported that 82% of participants masturbated and that 96% of women had orgasm with masturbation as opposed to 30% who had orgasm with coitus. In fact, half of the participants reported faking orgasm during sexual intercourse. In addition, participants primarily reported masturbating through direct clitoral stimulation (73%) and insertion of material into the vagina (3%). In that study, many women reported needing direct stimulation of the clitoris in order to have an orgasm.[16]

In our study, the rate of masturbation was found to be statistically lower. While the rate of masturbation was 4.6% before pregnancy, it fell to 3.8% during pregnancy. The results of our study are like those of Gökyıldız and Beji,[3] but are inconsistent with those of Kinsey et al. [26] This may result from Turkish people's having a more conservative mentality.

Dyspareunia is a parameter that negatively affects the sexual activity. Overall, dyspareunia has been shown to increase during pregnancy. Both physical and emotional factors may lead to dyspareunia during pregnancy. For example, some positions begin to be painful or disturbing due to the gradually increasing uterine size or uterine contractions during orgasm.[17] Naim and Bhutto found that 37.3% of their participants experienced dyspareunia.[4] Eryılmaz et al., in a study of various factors affecting sex life during pregnancy, found that 49.2% of pregnant women avoided sexual intercourse due to painful coitus.[18] Oruç et al. found that 25.9% usually experienced dyspareunia during pregnancy while 36% sometimes experienced it.[10] Gökyıldız and Beji found that painful coitus increased as a function of gestational age increase in about 30% of women.[3]

In our study, the frequency of dyspareunia was investigated. While the vast majority (53.2%) of study participants did not report dyspareunia, 32.6% reported mild, 12.2% moderate and 2% reported severe dyspareunia. In fact, the number of pregnant women reporting dyspareunia increased as gestational age increased. Factors leading to dyspareunia during pregnancy may be pelvic congestion and pressure, genital infections, pelvic joint relaxation and inappropriate sexual positions.

Many studies report that libido (sexual desire) decreases during pregnancy. However, American researchers Masters and Johnson report decreased sexual desire in the first trimester with an increase in libido in the second trimester and a subsequent decrease in the third trimester.[3] Nevertheless, in a Solberg et al. study conducted with 260 women, sexual desire decreased linearly beginning at the time when pregnancy was detected.[14] Furthermore, findings from Falcoy's study investigating the changes in sexual life and underlying factors, time and frequency of the changes in sexual behaviors in 19 primigravida did not support the results in Masters and Johnson's study in that it does not show the same increase in sexual desire during the second trimester as compared to the period before

pregnancy.[3] Likewise, Bogren, in a study conducted with 81 couples, reported a decrease in libido in all three trimesters.[19] In contrast, the results of a study of sexual desire by Butsan et al. conducted with 220 Muslim women from Kuwait Maternity Hospital are similar to the results of the study by Masters and Johnson.[20] However, Reamy et al., in a prospective study, found a decrease in sexual desire during pregnancy. Furthermore, the authors did not report an increase in libido in the second trimester.[15] Oruç et al., in a study investigating the effects of pregnancy on sexuality, also determined a decrease in libido as pregnancy continued across all three trimesters.[10] Similar results were found in the study by Gökyıldız et al.[3]

The libido scoring system used in our study found the mean libido score during pregnancy to be 7.31, decreasing to 6.38 during pregnancy. In a comparison by trimester, mean libido scores were 6.45 in the first trimester, 6.49 in the second trimester and 6.18 in the third trimester. While there was no statistically significant difference between the first and second trimester, a significant difference was found between the first and the third trimesters, and between the second and the third trimesters. A mild decrease in libido was found in the third trimester, which is similar to the findings in the research done by Masters and Johnson.[25] The reasons for this may be due to limitations on movements due to an extensively enlarged uterus in the third trimester, worries about the approaching delivery, increased pain due to pelvic pressure, or fear of losing or harming the fetus.

Conclusion

As might be expected in our study, the frequency of sexual intercourse was found to decrease as gestational age increased at a statistically significant rate. Sexual intercourse was found to be mostly initiated by the male partner both before and during pregnancy and this rate indicated a mildly significant increase during pregnancy. The frequency of having an orgasm was found to be significantly lower among pregnant women. The frequency of masturbation was also determined to be significantly lower during pregnancy. While 53.2% of pregnant women did not report dyspareunia, 32.6% of women reported mild and 14.2% reported moderate-to-severe dyspareunia during pregnancy. Dyspareunia was found to increase as the trimester increased.

In our study, the mean libido scores were found to be significantly lower during pregnancy. In addition, while there was no significant difference between the first and the second trimesters, a significant difference was found between the second and the third trimesters.

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